Claims

1. An optical add/drop multiplexer, comprising:

an optical filter reflective at a first wavelength and transmissive at a second wavelength;

an input path for carrying first and second optical input signals at first and second wavelengths respectively, the input path routed toward a first side of the filter such that the first signal is reflected and the second signal transmitted by the filter;

an optical drop path routed from a second side of the filter, to carry the transmitted second signal away from the filter;

an optical add path routed toward the second side of the filter for carrying a third optical signal, the third optical signal at the second wavelength and therefore transmitted by the filter; and

an output path for carrying the first, reflected signal and the third, transmitted signal from the first side of the optical filter, at the first and second wavelengths respectively.

2. The multiplexer of claim 1, further comprising:

a first collimating lens into which the third signal is transmitted along the add path and which transmits the second signal along the drop path.

3. The multiplexer of claim 2, further comprising:

a second collimating lens through which the first and second signals are transmitted along the input path and which transmits the first and third signals along the output path.

4. The multiplexer of claim 3, wherein the optical filter is fabricated directly on a surface of the second collimating lens.

5. The multiplexer of claim 4, wherein the optical filter comprises a thin film filter stack having multiple layers.

6. The multiplexer of claim 2, wherein the optical filter is fabricated directly on a surface of the first collimating lens.

7. The multiplexer of claim 6, wherein the optical filter comprises a thin film filter stack having multiple layers.

8. A method for forming an optical add/drop multiplexer, comprising:

providing an optical filter reflective at a first wavelength and transmissive at a second wavelength;

forming an input path for carrying first and second optical input signals at first and second wavelengths respectively, the input path routed toward a first side of the filter such that the first signal is reflected and the second signal transmitted by the filter;

forming an optical drop path routed from a second side of the filter, to carry the transmitted second signal away from the filter;

forming an optical add path routed toward the second side of the filter for carrying a third optical signal, the third optical signal at the second wavelength and therefore transmitted by the filter; and

forming an output path for carrying the first, reflected signal and the third, transmitted signal from the first side of the optical filter, at the first and second wavelengths respectively.

9. The method of claim 8, wherein said forming the add and drop paths comprise:

providing a first collimating lens into which the third signal is transmitted along the add path and which transmits the second signal along the drop path.

10. The method of claim 9, wherein said forming the input and output paths comprise:

providing a second collimating lens through which the first and second signals are transmitted along the input path and which transmits the first and third signals along the output path.

11. The multiplexer of claim 10, wherein the optical filter is fabricated directly on a surface of the second collimating lens.

12. The multiplexer of claim 11, wherein the optical filter comprises a thin film filter stack having multiple layers.

13. The multiplexer of claim 9, wherein the optical filter is fabricated directly on a surface of the first collimating lens.

14. The multiplexer of claim 13, wherein the optical filter comprises a thin film filter stack having multiple layers.